United States Patent [19]

Sarvis

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[54] METHOD FOR ASSEMBLING AN AWNING

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[73] Assignees: **American Floor Covering Company; American Awning & Shade Shop, Inc.**, both of San Antonio, Tex.

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[51] **Int. Cl.**[4] **E04B 1/00**

[52] **U.S. Cl.** **52/222**; 52/74; 52/273; 160/395

[58] **Field of Search** 52/74, 222, 273, 63; 160/76, 380, 395, 399

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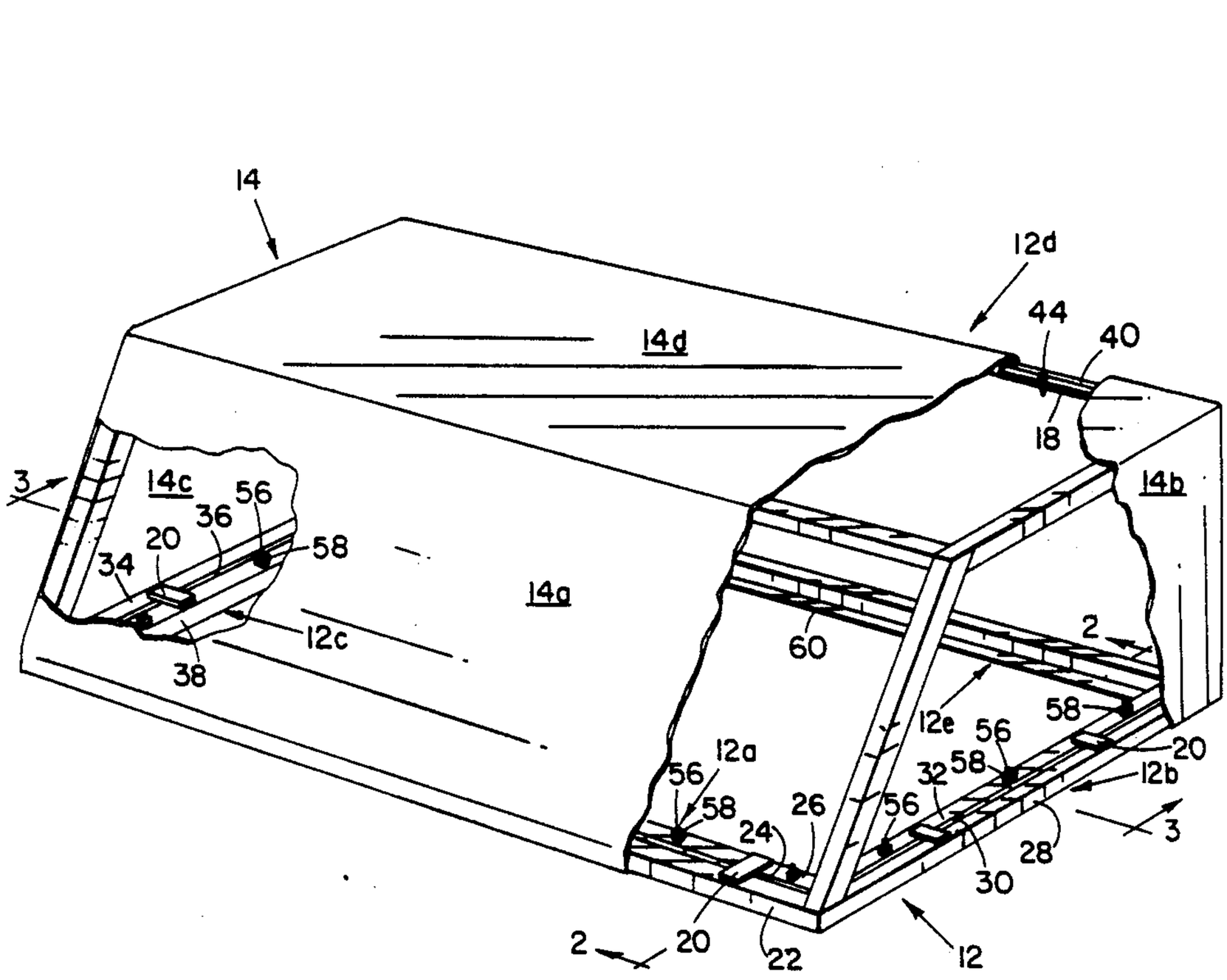
Primary Examiner—Carl D. Friedman

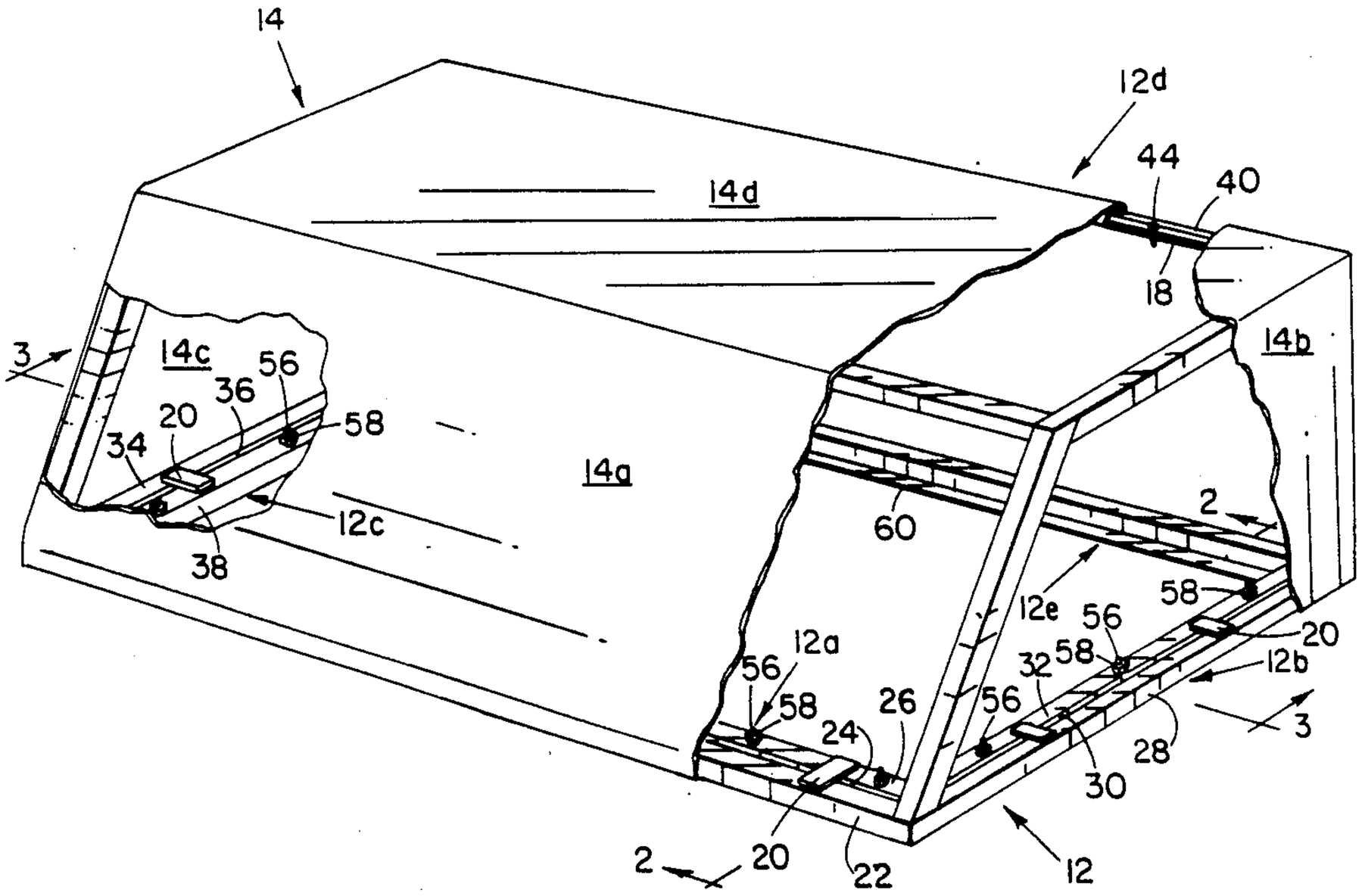
Attorney, Agent, or Firm—Sisson & Smith

[57] **ABSTRACT**

Method for assembling an awning, including method for tensioning awning material about an awning frame. The awning material is secured to the top rear of the frame and stretched over the bottom front and each bottom side of the frame. Pieces of spline are thereafter placed atop the material and pressed into slots defined by frame members on the bottom front and bottom sides of the frame. Keeper members are thereafter inserted into the slots in abutting engagement with the spline and are secured to the inner frame members.

10 Claims, 8 Drawing Figures

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40
14d
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14b
3
14c
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36
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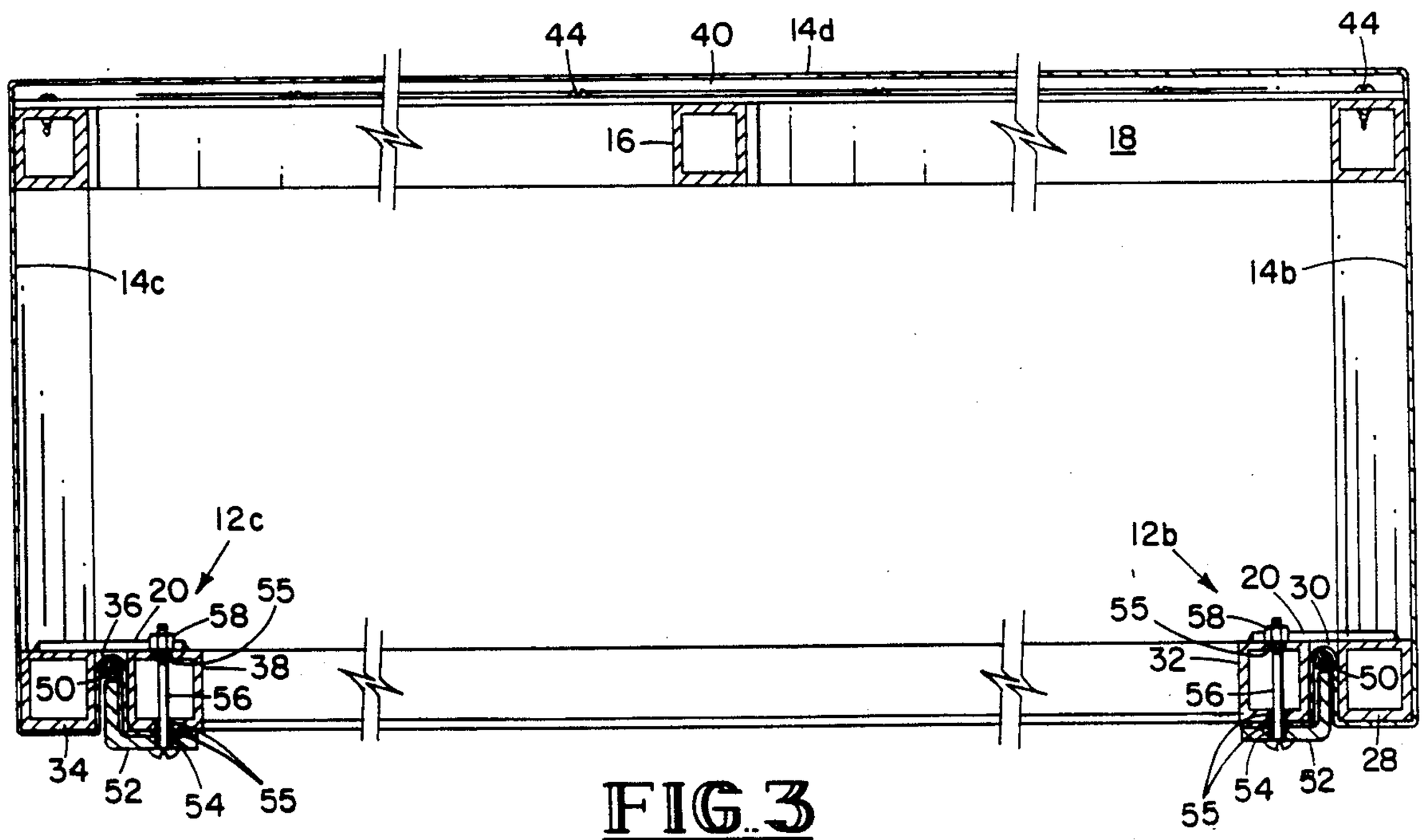
2
12e
58
56
20
12a
56
58
32
58
12b
26
56
24
3
28
30
2
20
22
12

FIG. 1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14b
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55
12b
20
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32
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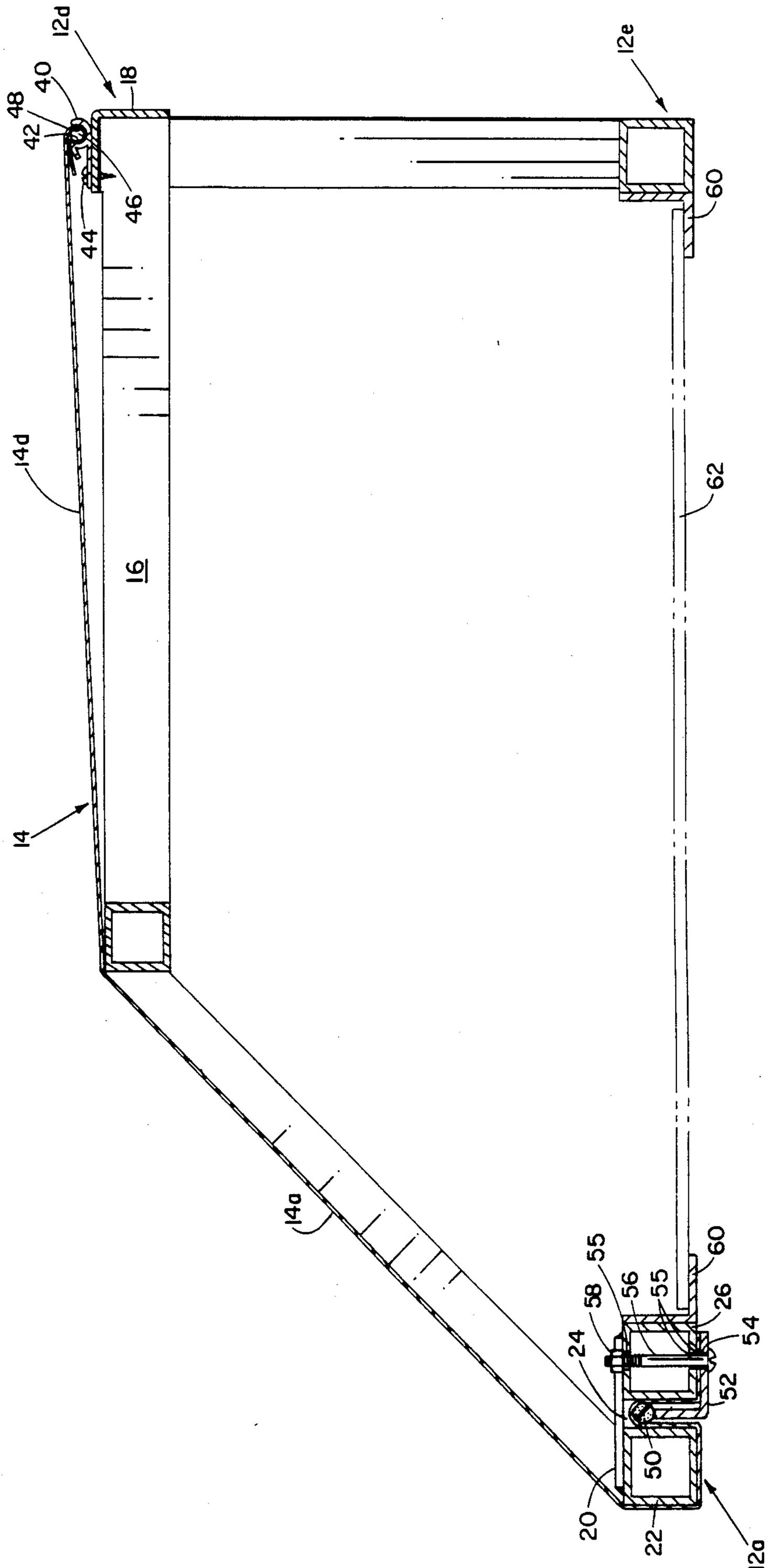
55
54
52

FIG. 3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18
40
48
42
46
44
12e
60
62
14d
16
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14a
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58
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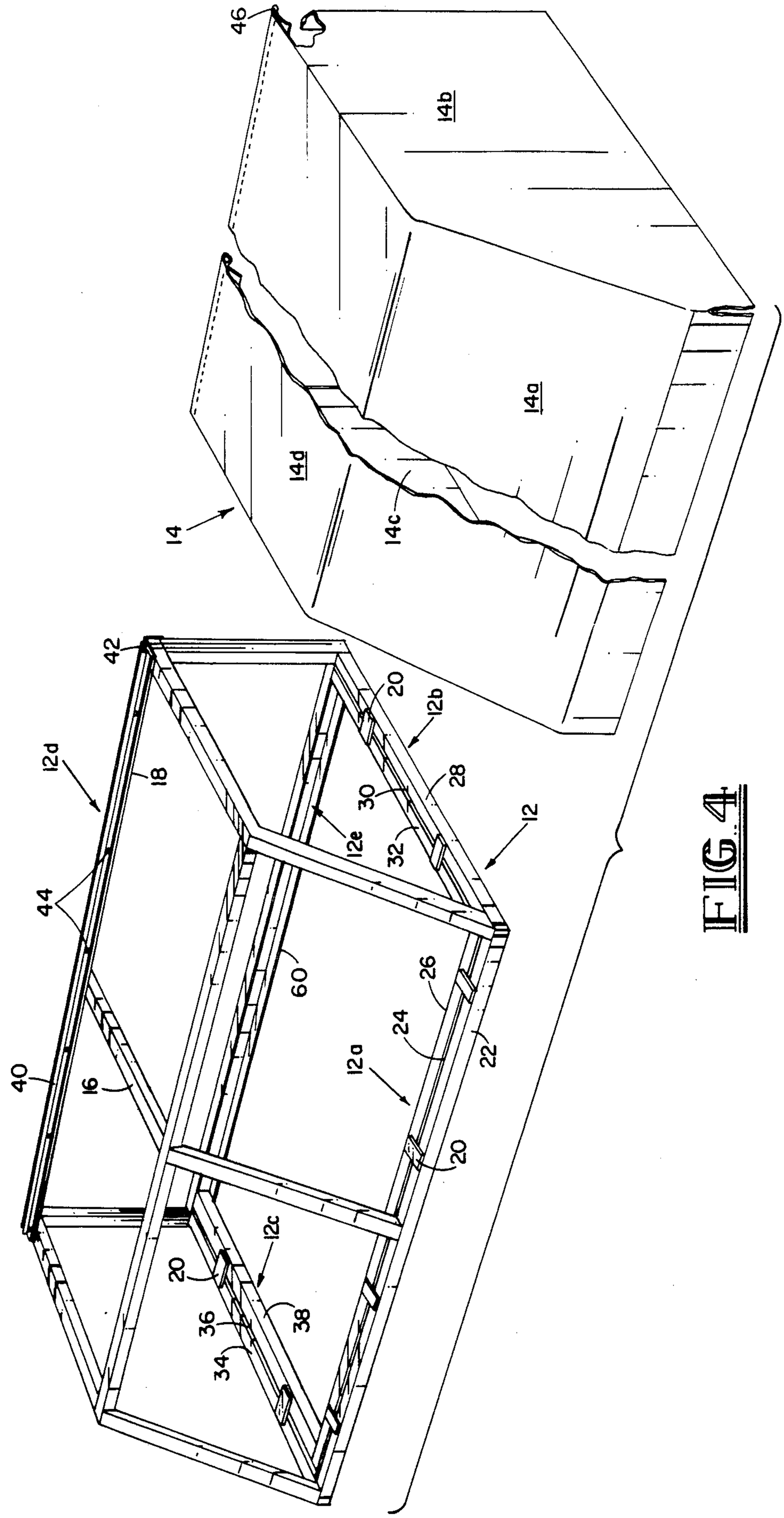
26
54
24
52
50
20
22
12a

FIG 2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14b
14d
14a
14c
14
42
20
12b
12d
18
28
30
12e
32
12
44
60
26
24
22
40
16
12a
20
12c
20
36
38
34

FIG. 4

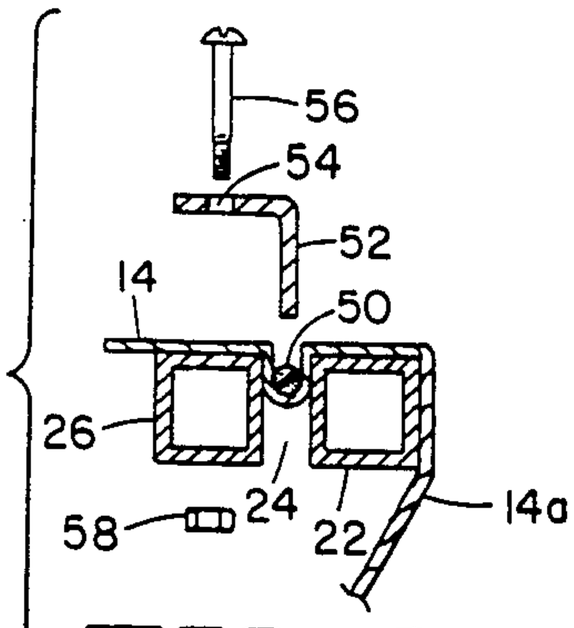

56
54
52
14
50
26
24
22
14a
58

FIG. 6

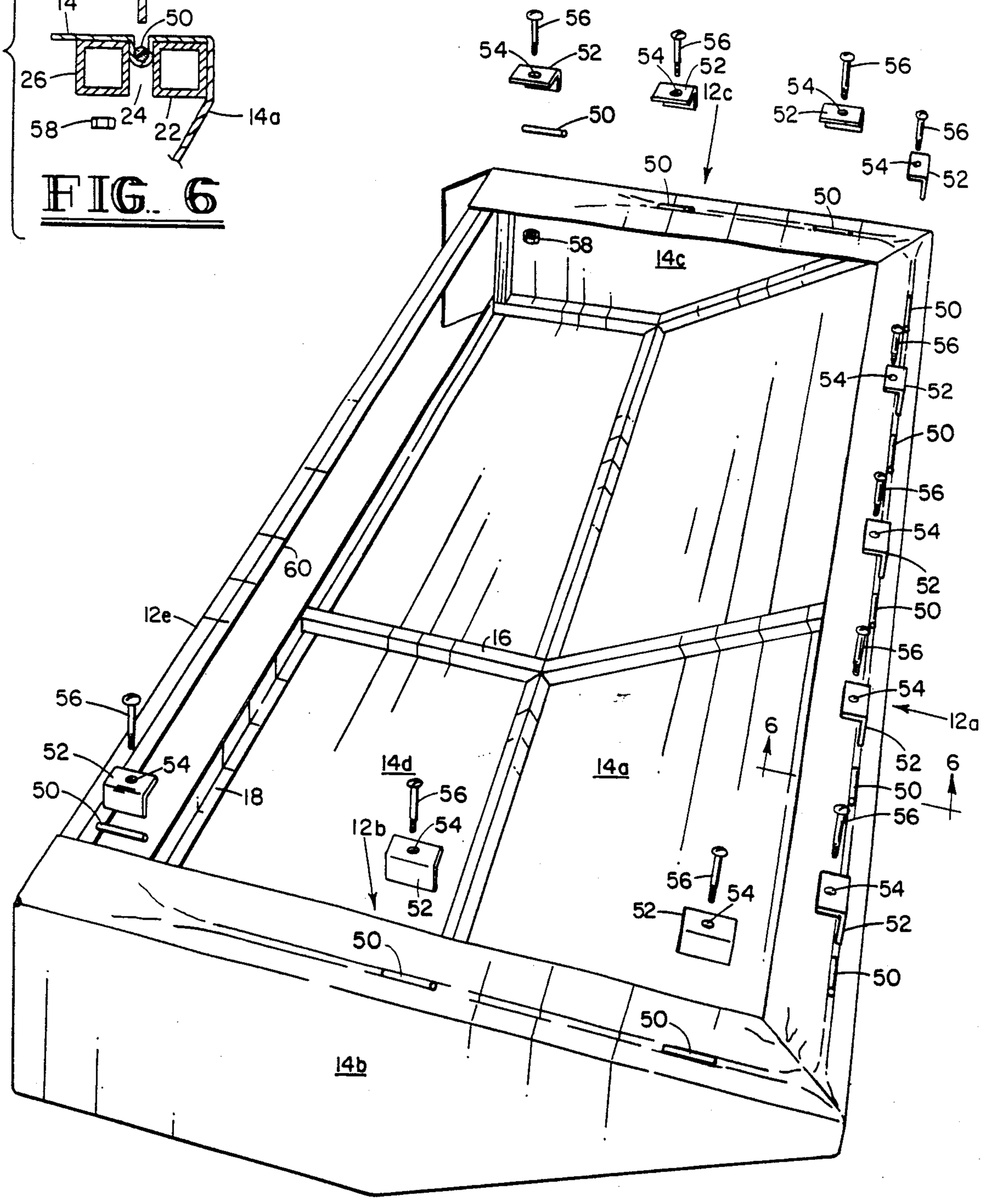

56
54
52
50
12c
58
14c
60
12e
16
18
14d
12b
14a
14b
6
12a

FIG. 5

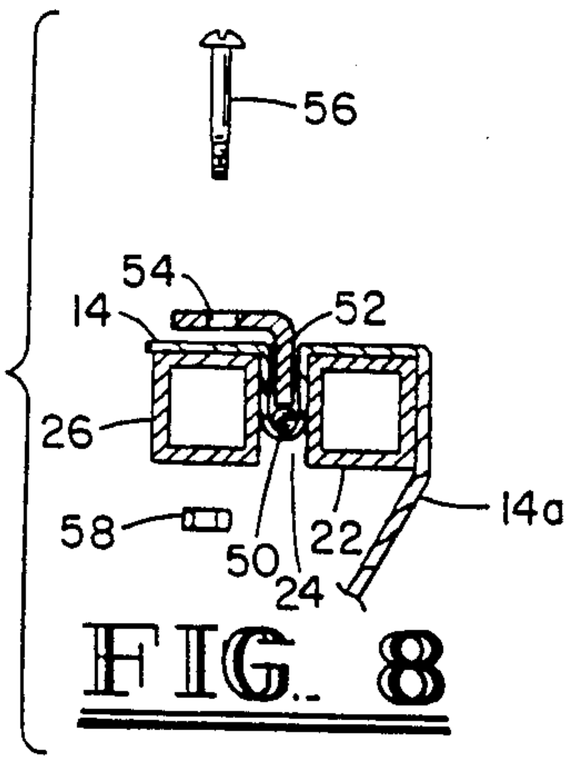
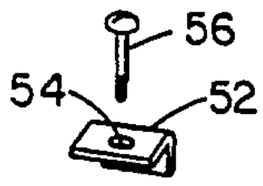

56
54
14
52
26
14a
58
50
22
24

FIG. 8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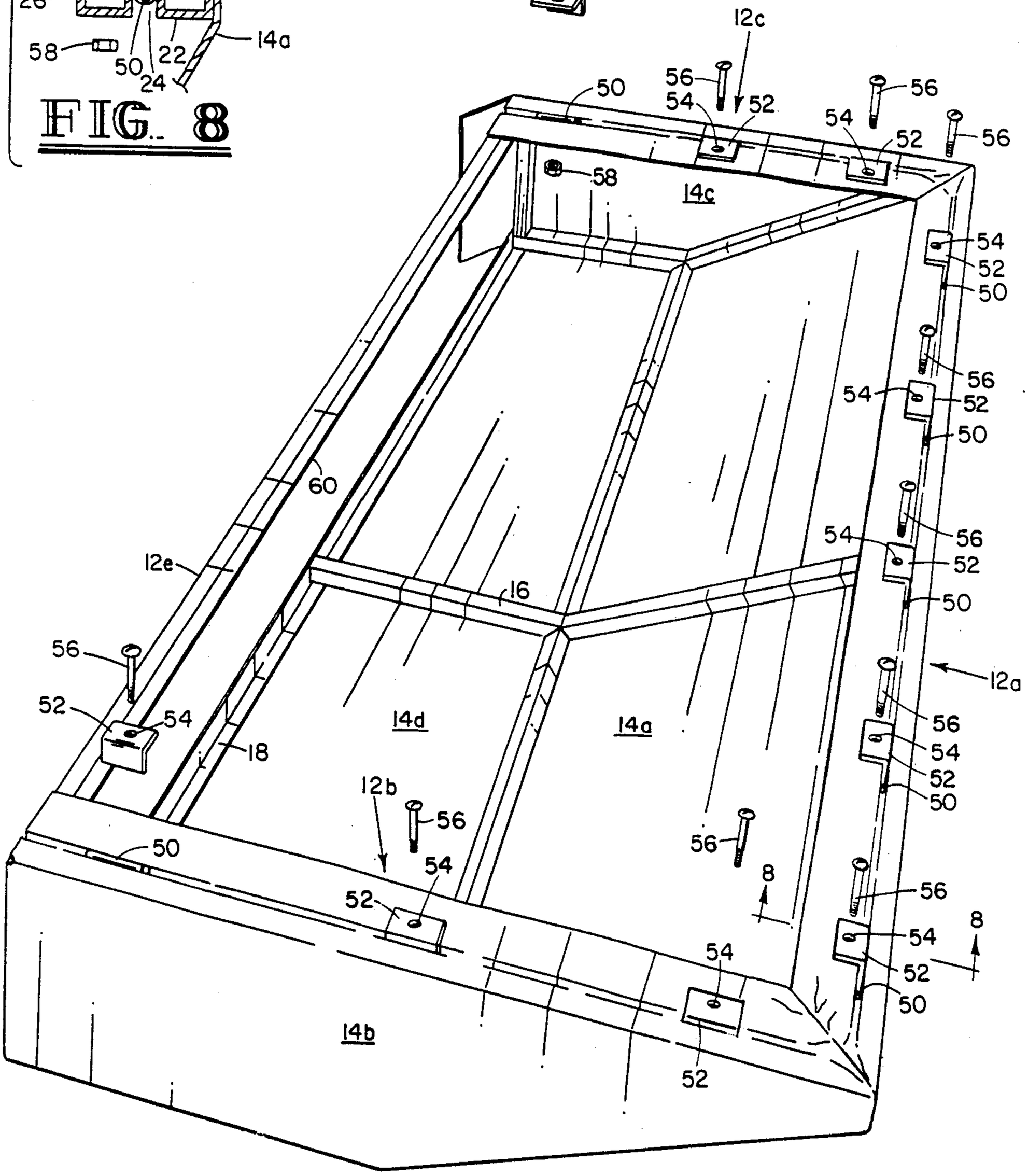
12c
56
54
52
50
58
14c
60
12e
16
18
14d
14a
12b
12a
14b
8

FIG. 7

METHOD FOR ASSEMBLING AN AWNING

BACKGROUND OF THE INVENTION

The present invention relates to a method for assembling an awning, including a method for tensioning the material from which the awning is constructed.

Awnings have grown in popularity in recent years. A conventional awning typically includes a welded frame having canvas, nylon, or vinyl material stretched thereover. One end of the awning material is sewn about a piece of spline and inserted into awning head-rail secured to the frame. In one type of awning, the opposite end of the material is secured to the frame by rope or line which extends through eyelets in the material and about the frame. The frame is thereafter secured to a building facade or other structure in a conventional manner.

One type of awning which has grown in popularity is the back lit awning. In this type of awning, vinyl-coated nylon material is stretched over a skeletal frame and a light source is placed within the frame behind the material, thereby illuminating the awning. Angle members secured to the frame may be utilized to support a piece of clear or shaded plastic or light diffuser material on the bottom of the awning. It is extremely important in a back lit awning that the vinyl-coated nylon material be as taut as possible about the skeletal frame, thereby providing an aesthetically pleasing awning structure which is properly illuminated.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides a method for assembling an awning, including a method for tensioning or tightening the awning material stretched over the awning frame. An awning assembled in accordance with the present invention is also disclosed.

The method of the present invention comprises the steps of assembling a skeletal frame and securing the awning material thereto. When the frame is assembled, a pair of frame members on the bottom front and each bottom side of the frame define a slot or groove between each pair of frame members. The awning material is secured to the top rear of the frame by sewing one end of the material about a spline and inserting the spline and respective end of the awning material into a slot in a C-shaped head-rail member secured to the top rear of the frame.

Once the first end of the awning material is secured to the top rear of the frame, the remainder of the awning material is spread over the frame and secured to the bottom front and each bottom side of the frame. The awning material is stretched over the bottom front and each bottom side of the frame and a plurality of pieces of spline are thereafter placed atop the material and pressed into the slots between the frame members on the bottom front and bottom sides of the frame. A plurality of angled keeper members are thereafter inserted into the slots in abutting engagement with the spline and are secured to the inner frame members on the bottom front and bottom sides of the frame. The assembled awning may thereafter be secured to a building facade or other structure in a conventional manner.

It is to be understood that when the spline is inserted into the slots between the pair of frame members on the bottom front and bottom sides of the frame, the awning material will be initially stretched or tightened about the awning frame. The awning material will thereafter be tightened to a further degree when the keeper members are inserted into the slots against the spline. A final tightening of the awning material occurs when the keeper members are secured to the inner frame members. The present invention thus provides a method for assembling an awning, including a method of tensioning the awning material about the awning frame, which is both convenient and economical to utilize, and which provides an aesthetically appealing awning structure.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of an upright awning assembled in accordance with the preferred embodiment of a method for assembling an awning.

FIG. **2** is a cross sectional view, taken along section lines **2—2** of FIG. **1**, of an upright awning assembled in accordance with the preferred embodiment of a method for assembling an awning.

FIG. **3** is a cross sectional view, taken along section lines **3—3** of FIG. **1**, of an upright awning assembled in accordance with the preferred embodiment of a method for assembling an awning.

FIG. **4** is a perspective view of a frame and awning material illustrating the preferred embodiment of a method for assembling an awning.

FIG. **5** is a bottom perspective view illustrating the preferred embodiment of a method for assembling an awning, including a method for tightening awning material about an awning frame.

FIG. **6** is a cross sectional view, taken along section lines **6—6** of FIG. **5**, illustrating a step in the preferred embodiment of a method for tightening awning material about an awning frame.

FIG. **7** is a bottom perspective view illustrating the preferred embodiment of a method for assembling an awning, including a method for tightening awning material about an awning frame.

FIG. **8** is a cross sectional view, taken along section lines **8—8** of FIG. **7**, illustrating a step in the preferred embodiment of a method for tightening awning material about an awning frame.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

An awning assembled in accordance with the present invention is illustrated in FIG. **1**, with portions of the awning material cut away for purposes of clarity. The awning comprises a skeletal frame **12** having material **14** secured thereto. The frame **12** has a bottom front **12***a*, a bottom right side **12***b*, a bottom left side **12***c*, a top rear **12***d*, and a bottom rear **12***e*. When the awning material **14** is secured about the frame **12**, material **14** defines a front wall **14***a*, right side wall **14***b*, left side wall **14***c*, and top wall **14***d*. Awning material **14** is preferably canvas or vinyl-coated nylon.

As illustrated in FIG. **1** and FIG. **4**, the frame **12** is preferably constructed of a plurality of frame members, including a center truss **16** and a right angle member **18** along the top rear **12***d*, which are preferably welded together in a conventional manner. Further, bottom front **12***a*, bottom right side **12***b*, and bottom left side **12***c* are each provided with a pair of substantially parallel frame members which are secured together by weld plates **20**. Bottom front **12***a* is provided with an outer tubular member **22** and an inner tubular member **26** defining a slot or groove **24** therebetween. Bottom right

side 12*b* is provided with an outer tubular member **28** and an inner tubular member **32** defining a slot or groove **30** therebetween. Bottom left side 12*c* is provided with an outer tubular member **34** and an inner tubular member **38** defining a slot or groove **36** therebetween. Frame member **26** is preferably welded to frame members **32** and **38**. Frame members **32** and **38** are preferably welded to the bottom rear 12*e* of frame **12**.

As illustrated in FIG. **2** and FIG. **4**, a C-shaped awning head-rail **40** having a groove **42** therein is attached to angle **18** by a plurality of sheet metal screws **44**. As further illustrated in FIG. **2** and FIG. **4**, an end of material **14** is wrapped around a nylon spline rod **46** with the referenced end of material **14** sewn so as to form a passage **48** within which to receive spline **46**. The referenced end of material **14** sewn about spline **46** is thereafter secured to the top rear 12*d* of frame **12** by sliding spline **46** (with material **14** secured thereabout) into groove **42**. Once the referenced end of material **14** is secured to frame **12**, as described hereinabove, the remainder of material **14** is thereafter spread over frame **12**, as illustrated in FIG. **1**. It is to be understood, however, that material **14** will preferably be precut and preshaped prior to being secured to head-rail **40** and spread over frame **12**.

The method for securing the respective remaining ends of material **14** to bottom front 12*a* and bottom sides 12*b* and 12*c* is illustrated in FIG. **2**, FIG. **3**, and FIG. **5**–FIG. **8**. As illustrated in FIG. **5**, the material **14** is stretched over bottom front 12*a*, bottom side 12*b*, *and bottom side 12c,* and the respective grooves **24**, **30**, and **36**. Pieces of spline, such as nylon spline **50**, are thereafter placed over material **14** at spaced intervals along the length of bottom front 12*a* and inserted into groove **24**, as illustrated in FIG. **5** and FIG. **6**, thereby urging material **14** into groove **24** and tightening material **14** along top wall **14***d* and front wall **14***a*. Pieces of nylon spline **50** are also placed over material **14** at spaced intervals along the length of bottom side 12*b* and inserted into groove **30**, as illustrated in FIG. **5**, thereby urging material **14** into groove **30** and tightening material **14** along top wall **14***d* and side wall **14***b*. Pieces of nylon spline **50** are also placed over material **14** at spaced positions along the length of bottom side 12*c* and inserted into groove **36**, as illustrated in FIG. **5**, thereby urging material **14** into groove **36** and tightening material **14** along top wall **14***d* and side wall **14***c*. In the preferred embodiment, spline pieces **50** are initially inserted to a depth of approximately one fourth ($\frac{1}{4}$) the depth of the respective grooves **24**, **30**, and **36**, as illustrated in FIG. **6**, thereby providing a first or initial tensioning of material **14**. Further, the insertion of spline pieces **50** preferably begins in approximately the center of bottom front 12*a* and proceeds in each direction therefrom toward the rear of bottom sides 12*b* and 12*c*, as illustrated in FIG. **5**.

Once the spline pieces **50** are inserted into grooves **24**, **30**, and **36**, right angle keeper members **52** are inserted therein, as illustrated in FIG. **7** and FIG. **8**, thereby urging spline pieces **50** and material **14** to a depth of approximately three fourths ($\frac{3}{4}$) the depth of the respective grooves **24**, **30**, and **36**, and providing a second or further tensioning of material **14**. That is, an angled keeper member **52** is inserted into groove **24** against each piece of spline **50** within groove **24**, as illustrated in FIG. **7** and FIG. **8**, thereby further tightening material **14** across top **14***d* and front **14***a*. An angled keeper member **52** is also inserted into groove **30** against each piece of spline **50** within groove **30**, as illustrated in FIG. **7**, thereby further tightening material **14** across top **14***d* and side wall **14***b*. Finally, an angled keeper member **52** is inserted into groove **36** against each piece of spline **50** within groove **36**, as illustrated in FIG. **7**, thereby further tightening material **14** across top **14***d* and side wall **14***c*. Insertion of keeper members **52** likewise preferably begins in approximately the center of bottom front 12*a* and proceeds in each direction therefrom toward the rear of bottom sides 12*b* and 12*c*, as illustrated in FIG. **7**.

Once the keeper members **52** are inserted in grooves **24**, **30**, and **36**, keeper members **52** are secured to inner frame members **26**, **32**, and **38**, respectively, as illustrated in FIG. **2** and FIG. **3**. Securement of keeper members **52** to the respective inner frame members **26**, **32**, and **38**, is preferably accomplished by drilling a passage **55** through material **14** and the respective frame members **26**, **32**, and **38** in alignment with the hole **54** in each keeper member **52**. A bolt **56** is thereafter inserted through each hole **54** and the drilled passage **55** in material **14** and frame members **26**, **32**, and **38**, with each bolt **56** thereafter secured to frame members **26**, **32**, and **38** by a nut **58**, as illustrated in FIG. **2** and FIG. **3**. Securement of keeper members **52** to the respective inner frame members **26**, **32**, and **38** urges spline pieces **50** and material **14** to a greater depth within the respective grooves **24**, **30**, and **36** and provides a third or final tensioning of material **14**, with the tightening of nuts **58** on bolts **56** providing a mechanical advantage in further tensioning material **14**. That is, securement of keeper members **52** to inner frame member **26** further tightens material **14** across top **14***d* and front **14***a*. Securement of keeper members **52** to inner frame member **32** further tightens material **14** across top **14***d* and side wall **14***b*. Securement of keeper members **52** to inner frame member **38** further tightens material **14** across top **14***d* and side wall **14***c*. Finally, the securement of keeper members **52** preferably begins in approximately the center of bottom front 12*a* and proceeds in each direction therefrom toward the rear of bottom sides 12*b* and 12*c*.

It is to be understood that the width of grooves **24**, **30**, and **36** is approximately three-sixteenths inch (3/16″) and that the diameter of spline pieces **50** is approximately one-quarter inch (¼″), thereby requiring the use of Vise Grips or another instrument to insert spline pieces **50** into grooves **24**, **30**, and **36**. However, the tight interference fit of spline pieces **50** within grooves **24**, **30**, and **36** assures that the material **14** will be drawn taut upon insertion of spline pieces **50** and adequately secured to the bottom front 12*a* and bottom sides 12*b* and 12*c* of frame **12**. In the preferred embodiment, tubing for frame **12** has a width of approximately one inch (1″) and spline pieces **50** have a length of approximately four inches (4″). Further, keeper members **52** are preferably aluminum, preferably have a length of approximately three inches (3″), a depth of approximately one inch (1″), and are preferably spaced approximately eight inches (8″) apart. Finally, it is to be understood that each step of tensioning material **14**, as described hereinabove, will stretch material **14** to a further degree. For example, if material **14** has a length of approximately seven feet (7′) from head-rail **40** to bottom front 12*a* and a stretch coefficient of approximately one eighth inch (⅛″) per foot, material **14** will ultimately be stretched approximately seven eights inch (⅞″) upon completion of the awning assembly.

It is to be understood that other types of spline or sturdy resilient matter, such as pieces of hard, solid rubber or soft wood, such as pine, may be readily substituted for nylon spline pieces **50**. It is also to be understood that any material **14** overlapping the rear of frame **12** may simply be folded back or screwed to frame **12**. It is also to be understood that once the material **14** is properly secured to frame **12**, material **14** may be trimmed and the awning may be secured to a building facade or other structure in a conventional manner, such as by wood screws, bolts, or expansion screws. Finally, if the assembled awning is intended to be utilized as a back lit awning, a pair of angles **60** may be welded or otherwise appropriately connected to inner frame member **26** and the bottom rear **12***e* of frame **12** in a manner sufficient to support a piece of clear or shaded plastic or light diffuser material **62**, as illustrated in FIG. **2**.

While the method for assembling an awning has been described in connection with the preferred embodiment, it is not intended to limit the invention to the particular form set forth, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents, as may be included within the spirit and scope of the invention as defined by the appended claims.

I claim:

1. An awning, comprising:

a frame having a groove therein;

means for securing a first end of awning material to said frame; and

means for securing a second end of said awning material to said frame and achieving a stepped tensioning of said awning material comprising:

a piece of spline adapted for insertion into said groove to a first depth in said groove, said inserting of said spline into said groove urging a portion of said second end of said awning material into said groove and achieving an initial tensioning of said awning material;

a keeper member adapted for insertion into said groove to abut said piece of spline, said abutting of said spline urging said spline to a second dept within said groove deeper than said first depth and achieving a further tensioning of said awning material; and

means for securing said keeper member to said frame, said securing of said keeper member urging said spline to a third depth within said groove deeper than said second depth and achieving a final tensioning of said awning material.

2. An awning, as recited in claim **1**, wherein said spline is nylon.

3. An awning, as recited in claim **1**, wherein said spline is rubber.

4. An awning, as recited in claim **1**, wherein said spline is wood.

5. A method for tensioning awning material, comprising the steps of:

(a) securing a first end of said material to a first portion of a frame;

(b) stretching said material over a second portion of said frame; and

(c) securing a second end of said material to said second portion of said frame, comprising the steps of:

i. placing a piece of spline over a portion of said second end of said material;

ii. inserting said spline into a groove in said frame to a first depth in said groove, thereby inserting said portion of said second end of said material into said groove in said frame, said spline insertion step achieving an initial tensioning of said material;

iii. inserting a keeper member into said groove in said frame so as to abut said spline and urge said spline to a second depth within said groove deeper than said first depth, said keeper member insertion step achieving a further tensioning of said material; and

iv. securing said keeper member to said frame, said keeper member securement step urging said spline to a third depth within said groove deeper than said second depth and achieving a final tensioning of said material.

6. A method for tensioning awning material, as recited in claim **5**, wherein said step of securing said keeper member to said frame comprises the steps of drilling a passage in said frame, inserting a bolt through a hole in said keeper member and said passage in said frame, and securing said bolt to said frame.

7. A method for assembling an awning, comprising the steps of:

(a) assembling a frame;

(b) securing a first end of awning material to a first portion of said frame;

(c) stretching said awning material over a second portion of said frame; and

(d) securing a second end of said awning material to said second portion of said frame, comprising the steps of:

i. placing a piece of resilient matter over a portion of said second end of said material;

ii. inserting said piece of resilient matter into a groove in said second portion of said frame to a first depth in said groove, thereby inserting said portion of said second end of said material into said groove in said frame, said resilient matter insertion step achieving an initial tensioning of said material;

iii. inserting a keeper member into said groove in said second portion of said frame so as to abut against said piece of resilient matter and urge said resilient matter to a second depth within said groove deeper than said first depth, said keeper member insertion step achieving a further tenisoning of said material; and

iv. securing said keeper member to said frame, said keeper member securement step urging said spline to a third depth within said groove deeper than said second depth and achieving a final tensioning of said material.

8. A method for assembling an awning, as recited in claim **7**, wherein said step of securing said keeper member to said frame comprises the steps of drilling a passage in said frame, inserting a bolt through said keeper member and said passage in said frame, and securing said bolt to said frame.

9. A method for tensioning awning material, comprising the steps of:

(a) securing a first end of said material to a first portion of a frame;

(b) stretching said material over a second portion of said frame; and

(c) securing a second end of said material to said second portion of said frame, comprising the steps of:

i. placing a piece of spline over a portion of said second end of said material;

ii. inserting said spline into a groove in said frame to a first depth in said groove, said groove having a substantially uniform width, thereby inserting said portion of said second end of said material into said groove in said frame, said spline insertion step achieving an initial tensioning of said material; and

iii. securing said keeper member to said frame so as to insert said keeper member into said groove to abut said spline, said keeper member securement step urging said spline to a second depth within said groove deeper than said first depth and achieving a final tensioning of said material.

10. A method for tensioning awning material, comprising the steps of:

(a) securing a first end of said material to a first portion of a frame;

(b) stretching said material over a second portion of said frame; and

(c) securing a second end of said material to said second portion of said frame, comprising the steps of:

i. placing a piece of spline over a portion of said second end of said material;

ii. inserting said spline into a groove in said frame to a first depth in said groove, said groove having a substantially uniform width and said spline forming a tight interface fit within said groove, thereby inserting said portion of said second end of said material into said groove in said frame, said spline insertion step achieving an initial tensioning of said material;

iii. inserting a keeper member into said groove in said frame so as to abut said spline and urge said spline to a second depth within said groove deeper than said first depth, said keeper member insertion step achieving a further tensioning of said material; and

iv. securing said keeper member to said frame, said keeper member securement step urging said spline to a third depth within said groove deeper than said second depth and achieving a final tensioning of said material.

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